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## SCALY VENEREAL DISEASE.

(SYPHILIS SQUAMOSA, SCALY VENEREAL DISEASE [CARMICHAEL,] SYPHILIS CORNEA, LEPRA SYPHILITICA, PSORIASIS SYPHILITICA.)

[By Dr. Zeissl, Professor at the General Hospital at Vienna. Translated for the Boston Medical and Surgical Journal from the Allgemeine Wiener Medizinische Zeitung, Nos. 38–39, 1862, by B. Joy Jeffries, M.D., Boston.]

If we consider the scaly venereal diseases as genuine affections of the skin, we must recognize a pityriasis syphilitica, and perhaps, also, an eczema syphilitica squamosa. These are not, however, distinct elementary forms of disease, but rather transmutations or stages of distinct syphilitic affections of the skin. Thus, an accompanying symptom of syphilitic erythema is a branny desquamation on the head, like pityriasis. So, also, a branny defurfuration is seen on the haired portions of the face after syphilitic impetigo on this part. The miliary papular syphilide, also, when it runs an acute course, is followed by copious defurfuration. Hence it is evident that the form which has been called pityriasis syphilitica may be equally the sequela of various syphilitic affections of the skin, just as occurs in the common diseases of this organ. Moreover, the eruptions deeply implicating the cutis, as ecthyma syphiliticum, rupia syphilitica, cause a constant desquamation over the cicatrices so long as these latter retain any color.

As respects psoriasis syphilitica, we think the same must be said of it, as a distinct form, as was remarked of pityriasis syphilitica; namely, that we can recognize no syphilitic affection of the skin that may be considered as originally dependent upon a degeneration of the epidermal layer, as hypertrophy of the epidermis, or as scaly tubercles. That which from analogy is generally called psoriasis syphilitica, is nothing else than a papule or a tubercle in the stage or process of desquamation. That the psoriasis syphilitica, which is also known by some authors as lepra Willani, is but a metamorphosis of another syphilide, follows from the fact that all authors agree in this psoriasis gyrata or lepra syphilitica being an old recidivate syphilis; that is, developing on such persons who have formerly exhibited papules or tubercles. Now if these papules or tubercles are grouped in a circle and desquamate, or abort by not fully developing, they will thus form a scaly ring in the form of psoriasis gyrata (lepra syphilitica).

Those affections of the skin accompanied by abnormal formation of epidermis on the palms and plantar surface of the feet are more worthy of the title of psoriasis, and have always been designated as psoriasis syphilitica palmaris and plantaris, because they in the course of their development, and after long continuance, give rise to continued formation of scales. But, as we shall soon show, these affections are only macular or papular eruptions in the process of metamorphosis.

Psoriasis syphilitica palmaris or plantaris is developed thus: on the vola manus or planta pedis appear circular, faint reddish-colored spots, the size of a linseed or a pea, which gradually rise slightly above the surface. The pale or rosy red of the eruption becomes slowly brownish. After this pale reddish color, which marks the stage of hyperæmia of the affected portion, has disappeared, and the brownish-red color fades, the thickening of the epidermis commences, which then so resembles a callus that the patient for a long time imagines that it was caused by pressure with a knife or some other instrument or implement. This callus is, however, either gradually spontaneously thrown off or removed by the patient.

Examining this callus a little closer, we find it composed of a mass of horny, shrunken epidermis, with an amorphous exudation on the surface lying next the cutis. After removing the callus, the skin underneath appears thinned, deep red, stamped out, as it were, with an edge of undermined epidermis, and the surface covered with a very delicate epidermal layer.

If we regard this phase as the second stage of psoriasis syphilitica palmaris or plantaris, then this affection of the skin may be considered as having a first stage when there is thickening, and a second when there is thinning of the epidermis.

The efflorescence just spoken of has not, however, always a circular form, which is explainable by the anatomical character of the skin of the vola manus and planta pedis. On all other portions of the body, exudations which form efflorescences on the skin are mostly deposited in the sebaceous glands, and so, as it were, cast in a mould, taking necessarily the circular form of the follicle. On the palm and sole of the foot, from the absence of sebaceous glands, this cannot take place, and the exudation is deposited indiscriminately between the cutis and the epidermis. Perhaps, also, the greater adherence of the cutis to the underlying fascia, and the thickness and want of elasticity of the epidermis, may contribute in mechanically compressing the efflorescence.

*Appearance of the Eruption on the Vola Manus and Planta Pedis.*—In most cases only ten, twelve or fifteen spots show themselves at the commencement, and these are evenly distributed over the palm.

*Course.*—In some cases psoriasis palmaris or plantaris may heal spontaneously, without the assistance of art, both in its first and its second stages; in the former by the exudation being absorbed, and in the latter by the epidermis assuming its normal character through regeneration. In most cases, however, new eruptions take place in the neighborhood of those already desquamating, the exudation continuing to be deposited upon those places where exfoliation is going on. Hence several papules join and thereby alter the form of the efflorescence, assuming more and more the circular shape. Further than this, the exudation collects and exfoliates in thicker and thicker layers, especially in the furrows of the hand and the sole of the foot, producing fissures, which have long had the name of "rhagades syphiliticæ," from the Greek word ϱάγας (fissure, cleft). These are troublesome to the patient, because they cause pain and bleeding at every motion of the part. The longer psoriasis palmaris and plantaris exist, the more the disease spreads laterally.

*Accompanying Symptoms.*—Psoriasis palmaris and plantaris occur, in most all cases, in company with erythema syphiliticum maculosum, or maculo-papulosum and the papular syphilide. When erythema syphiliticum maculo-papulosum reaches to the wrist, the above-mentioned commencement of psoriasis palmaris always appears upon the palms. In the chronic papular syphilide, psoriasis palmaris generally occurs when the papular syphilide has entered upon its second stage of eruption, that is, has begun to recede.

The fact that so great a difference exists between the eruption on the wrist and the palm, would show that psoriasis palmaris and plantaris is simply a form due to the locality, just as we have explained in respect to the moist papules in the papular syphilide. Psoriasis palmaris and plantaris is the repetition of the same elementary process which takes place on the rest of the general integument of the body, and which is only altered by the anatomical character, the greater adherence, firmer consistency and want of elasticity of the skin. Just so the flat condyloma resembles, from its greater development in the abundant cellular tissue of the affected part, a papule on other portions of the body. We may, therefore, consider psoriasis palmaris and plantaris simply as an abortive development of the papular syphilide.

The chief reason why psoriasis palmaris and plantaris have been and are considered as substantially syphilitic affections, may be sought for in the fact that they last a much longer time than the accompanying symptoms on the skin; for the absorption of the exudation and restitution of the epidermis takes place much more slowly on the palms and soles of the feet than on other portions of the common integument.

Besides occurring with syphilitic erythema and the papular syphilides, psoriasis syphilitica sometimes also accompanies acne and varicella syphilitica, although we ourselves have observed this but very rarely. There is generally a considerable loss of hair with individuals suffering from psoriasis palmaris and plantaris, and onychia syphilitica is also associated with the latter.

Besides the above-mentioned psoriasis palmaris and plantaris, which we may regard as a maculo-papular form, we believe we should mention a rarer form of syphilitic affection of the skin of the vola manus and planta pedis. This consists, namely, in a diffuse, evenly-distributed, sudden, horny transformation of the upper layers of the epidermis, whereby these portions of the skin present a very peculiar appearance, as if the affected epidermis had changed into a fine dullish-white silver brocade.

As to the relative frequency of this affection on the palm and sole, we think we may state that it in most cases occurs at the same time on the vola manus and planta pedis. In many cases, however, it appears only on the palm, and in rare cases on but one hand or one foot.

From our experience, psoriasis palmaris and plantaris must always be considered as the symptom of acquired syphilis. We have never had an opportunity of witnessing it in the new-born infant.

*Differential Diagnosis.*—Here we would warn against diagnosticating, like a fortune teller, any slight epidermal thickening on the palm or sole of the foot, at once as a syphilitic affection. This is a mistake that not only occurs in the routine of practice, but is also made by men of scientific attainment, and not seldom to the detriment of the patient. Fallopius's saying, "*quoties ego video rhagades in manubus, indicium certum profero gallici,*" is a very doubtful maxim, and one liable to give rise to many errors of diagnosis.

Psoriasis syphilitica palmaris and plantaris are most frequently confounded with psoriasis vulgaris palmaris and plantaris, as also with common eczema of the palm and sole. Common psoriasis on these parts differs from the syphilitic by causing larger, more separated plaques. The affected portions of the skin, when freed from the scales, moreover, have a more bluish-red color, whilst the syphilitic has, as is well known, a coppery red. The epidermal scales of psoriasis vulgaris are much whiter, and more difficult to remove, than those of psoriasis syphilitica. The syphilitic scale represents a thickened epidermal lamella, whilst the other is more like an agglomerate of diseased epidermis cells. The centre of the psoriasis vulgaris scale is raised, but that of psoriasis syphilitica is depressed. Common psoriasis of the palm and sole is always associated with general psoriasis, so that we shall scarcely find a patient with the former who does not exhibit psoriatic plaques in the neighborhood of the knee-pan or elbow, whilst the syphilitic form on the vola manus and planta pedis may occur either alone, that is, after the maculo-papular syphilide has disappeared from the rest of the body, or in connection with other syphilitic affections of the common integument, the mucous membrane, the glands, or of the bones.

Eczema palmare differs from syphilitic psoriasis palmaris in that it causes varying appearances on the epidermis of the hand, according to the particular stage of the eczema. If the eczema palmare is still recent, we find scattered, or grouped, hyaline vesicles, whose contents are gradually absorbed or evaporated, whereby the former epidermal covering of the vesicle becomes a thickened parchment-like scale of epidermis. If the fresh eczema vesicle is pricked or scratched off, a gummy fluid exudes, whilst the exudation of psoriasis syphilitica is always dry. These dried masses of eczematous exudation when grouped together, partly composed of old cast-off epidermis and partly of the now dried fluid, form a yellow, thickened epidermal plate covering the affected part, and are easily removed. Examining such an epidermal lamella we find on the surface towards the cutis the marks of the former vesicles, a sort of negative impression of the latter. Underneath the layer, when removed, is a very delicate new epidermic sheet, of a rose or else deep-red color, that in a few days is covered with a new eruption of vesicles. Such groups of vesicles may naturally, when in large numbers and becoming confluent, cover the whole palm, and by continued exudation produce such a thickening of the epidermis, that from its consistency and color it may be best likened to a mummified parchment-like rind. The color of this epidermis often resembles that produced by nitric acid on the latter. As respects locality, syphilitic psoriasis palmaris more generally affects the middle of the palm, whilst eczema palmare occurs on the radial and ulnar borders. Moreover, in eczema palmare we generally find eczema vesicles on the interdigital surfaces or backs of the affected fingers, which is not the case in psoriasis syphilitica palmaris. Finally, no eczema causes such an itching during its origin as eczema palmare and plantare, so that the patient is not content to scratch the part with the nails, but endeavors to appease the desire by rubbing against the most sharp-pointed objects, and thus wounding himself.

Psoriasis palm. syph. maculo-papulosa always begins with dark-red spots the size of a linseed to that of a pea, leaving, after they have faded, an epidermal thickening of corresponding size. This horny epidermis thickens more and more, the central portion as large as a pin's head is thrown off, so that we have a disk of epidermis with a hole in the middle. Underneath this, when it is either thrown off or forcibly separated, lies a thinned, coppery-red-colored epidermis, surrounded with an undermined border of the same, marking the sound from the diseased part. Such thickening and thinning of the epidermis may unite, and so, especially in the folds of the palm, form furrows or cracks in the skin. Notwithstanding this peculiar degeneration of the epidermis there is no itching caused by it, and hence the patient does not feel impelled to scratch the part.

Besides these local appearances, the accompanying symptoms of this affection that point to syphilis must be noticed, and we shall seldom find a psoriasis palmaris or plantaris syph. without more or less loss of the hair, and a diseased condition of the finger or toe nails. Moreover, there will be noticed on the rest of the general integument or on some portions of the mucous membrane, plaques muqueuses in different stages of development.

In many cases the occupation of the patient might assist the beginner in his differential diagnosis, as in the eczema of the washer-women, the so-called psoriasis of the washer-woman, or eczema of the bakers (scabies pistorum).

*Prognosis.*—As respects prognosis, it is the same in all the syphilides, only that one cannot insure against a relapse or an increase of the constitutional affection.

Psoriasis palmaris and plantaris syphilitica must, however, be reckoned amongst the most stubborn forms, both on account of their long duration and their resistance to treatment, and the physician must therefore expect a hard struggle. The erythematous or papular syphilide on the other portions of the body may fade within ten or twelve days, whilst this epidermal thickening of the palm often shows no sign of involution after weeks of treatment.

Psoriasis palmaris is in so far a good omen for the patient, as it represents the dry syphilides and thus relieves the fear that there is anywhere dangerous suppurative softening of the more important organs, for example, exudation in the pupil, or under the periosteum or in the bones.

## ON GOLD DUST AND IRON FILINGS, AS AN ANTIDOTE FOR CORROSIVE SUBLIMATE.

By Christopher Johnston, M.D., Baltimore, Md.

In the year 1841, a rejected lover, at that time a visitor in Baltimore, committed suicide by taking a large dose of the corrosive chloride of mercury. The case fell into the hands of Dr. Thomas H. Buckler, who employed, unavailingly, all the known antidotes for this destructive agent, and had the misfortune to see his patient die in great agony. The failure of art to relieve made a strong impression upon Dr. Buckler, and he forthwith instituted experiments with the view of ascertaining by observation the efficacy and value of the various articles used or proposed to counteract the poisonous effects of the mercurial salts.

In the course of these experiments upon pigs and dogs, it occurred to him to magnify the *galvanic test* into an antidote—for, said he, if the corrosive chloride in solution, being placed on a bright gold surface, and touched with an iron point which is also brought in contact with the gold, undergoes decomposition, there is no reason why gold and iron in the form of powder, as exposing great surface, should not also separate chlorine and mercury in combination in the living stomach. Besides, the elements are instantly appropriated by the antidotal agents, "the mercury attaching itself to the negative electrode, namely, the gold, while the chlorine unites with the iron of the positive electrode to form chloride of iron; and thus, for a highly dynamic substance, we substitute a comparatively inert amalgam of gold and a harmless chloride of iron."

Accordingly into the stomach of pigs and dogs he introduced poisonous doses of the corrosive chloride of mercury, taking care to control the œsophagus; and then, after various intervals, he passed an estimated quantity of gold dust and iron filings into the stomach of a portion of the animals. All the poisoned animals which had not received the antidote became the victims of the experiment; and of the others, those only died which had presented very severe symptoms before the administration of the remedy.

These results were published by Dr. Buckler in the Baltimore *Medical and Surgical Journal* in 1843, with a recommendation, by the author, of the *new antidote* which he proposed. But the suggestion seemed to have received no attention whatever, until, in the last year, a case of corrosive sublimate poisoning occurred to us, in the which we essayed for the first time gold dust and iron filings upon the human subject.

We had had the good fortune to witness a repetition of Dr. Buckler's experiments, and were familiar with his views in respect of the agency at work; so that we only awaited a fitting opportunity for testing the value of our friend's proposition.

On the 14th of May last, a gentleman of this city, being disturbed in mind, procured two drachms (ʒ ij.) of corrosive sublimate from an apothecary, assigning as a reason his intention of destroying rats; mixed two-thirds of the salt with whiskey and water and swallowed the whole at a draught, leaving no dregs in the tumbler. In about ten minutes his wife, hearing efforts at vomiting in her chamber, proceeded thither, and found her husband sitting up in violent and agonizing emesis. A word and the fatal paper satisfied her as to the danger of the sufferer; whereupon she despatched a messenger for medical aid, but administered the while milk and white of egg, having in a previous marriage been the observant wife of a physician.

In five minutes—it so happened—we were at the bedside, and the galvanic antidote being present in our mind, we sent in haste for two drachms of iron by hydrogen, and a book of gold-leaf. While waiting for the arrival of the articles we encouraged perseverance in the use of albumen and milk, but the patient continued to vomit freely, violently, and unintermittingly. Everything swallowed was rejected as soon as it approached the stomach, and then, after sturdy efforts, small quantities of greenish mucus, streaked with blood, were discharged. The face was much congested, the body cold, and the whole surface bedewed with sweat.

In less than ten minutes (in all, somewhat short of twenty-five minutes from the ingestion of the sublimate) we had prepared a bolus by dusting the surface of a leaf of gold with the iron, over this another leaf, then iron, and so on, alternating the two metals until about one half of the gold-leaf had been expended, and the mass was rolled into a ball.

Before swallowing this, however, we administered warm water to effect the removal of mucus, albumen, and milk, should any of these matters be in the stomach, as they must defend the sublimate from the action of the antidote by preventing contact. Instant emesis followed.

The bolus was readily taken into the stomach, aided by a little water, for the poisoned man regretted his act, and wished to escape from death. For five minutes there was a calm, during which we made another bolus with the remainder of the gold-leaf and iron.

Vomiting now recurred, but with less violence, and the matters ejected were tinged with yellow or light brown, and contained particles of gold-leaf.

Presently another moment of quiet occurred, which was the signal for the administration of the second bolus. Vomiting now ceased entirely, although at intervals for an hour a slight tendency towards emesis was observable—but the frantic, tremulous anxiety, had given place to confidence and composure—the man had assumed a hopeful appearance, and we were of opinion that the first—the greatest danger—was past.

On the next day, moderately severe ptyalism manifested itself; but the convalescence was rapid, and the cure was complete in about eight days.

The after-treatment, when vomiting was arrested, was very simple, consisting of hydrocyanic acid in mucilage with small doses of morphia; mucilaginous drinks, as of gum Arabic, or quince seed, were directed; and beef-tea and arrowroot were the essential articles of diet for some days. Rochelle salt dissolved in soda water was given on the first days, and counter-irritation over the epigastrium practised from the beginning, and continued until all signs of gastric disturbance had disappeared. And, to conclude the statement, the mouth symptoms were met by gargles of tinct. perchloride of iron largely diluted with water, alum in infusion of sage, and lastly, flaxseed tea acidulated with lemon.

We would not insist upon the superior efficacy of gold-leaf and of iron by hydrogen over gold dust and fresh iron filings—although in the case reported the virtue of the former was apparent to and acknowledged by all the witnesses—for we have still a preference for the latter, on account of the freshness of the metallic surfaces. But in the hurry of the moment, the first mentioned may be easily obtained in a state of preparation excepting on Sundays, and then even a dentist would furnish gold-foil, No. 4 or lighter, which would supply the place of gold-leaf. If the conveniences were at hand, or, if we were near a pharmaceutist's, we would prefer to grind gold-foil with fresh iron filings in a mortar, and exhibit the coarse powder so produced with a little water; for the heavier particles would more quickly find their way to the mucous coating of the depending portion, while enough of the finer particles would distribute themselves throughout the stomach to accomplish the destruction of the corrosive chloride not in contact with the mucous membrane.

With regard to the quantity and proportions of gold and iron to be administered together as an antidote for the corrosive mercurial salt, it is desirable to know approximately the amount of the poison taken; but this is not indispensable, for an overdose of the remedy would occasion no "unpleasant" consequences. Lest an insufficient quantity of the metals be exhibited, a reference to the table of equivalents is necessary. As for mercury and gold there is much discrepancy among authors, but if we adopt for Hg 100.1 (Erdmann) for Au 196.44 (Berzelius), for Fe 28.04 (Erdmann) and for Cl 35.5 (Berzelius), we have for corrosive sublimate the formula $HgCl$ $(100.1 \times 35.5) = 135.6$, and 100 grains would contain Hg 73.82, and Cl 26.18. Now, since the corrosive sublimate in the presence of gold and iron is reduced, and there are formed an amalgam of gold and sesquichloride of iron, we must know how much iron is needed to make that compound with Cl 26.18. The formula for the sesquichloride is $Fe_2Cl_3$ $(56.08 \times 106.5) = 162.58$; therefore in 39.96 grains we have Cl 26.18 combining with Fe 13.78, the quantity sought.

Again, to estimate the gold, assuming the amalgam formed to be in equivalent proportions, we find $AuHg$ $(196.44 \times 100.1) = 296.54$; and in 218 grains we discover 144.86 grains of the precious metal, and 73.82 grains of mercury. Or, if we employ the equivalents adopted by Cahours, thus, Au 98.18 (not far from Graham, Au 99.6) and Hg 103, we have 140.92 grains of amalgam yielding 67.10 grains of gold. In short, we need 144.86 grains of gold (or else 67.10 grains) to appropriate the mercury liberated by the action of the reagents. This discrepancy is not likely to lead to ill results, for, if we use the larger number, we might be quite at ease about the amalgam produced, and it is not certain that the lesser quantity would contribute to form an amalgam more nocuous than the other.

To sum up: For 100 grains of the corrosive sublimate of mercury taken, there would be required of iron 13.78 grains, or rather less than the one-seventh part by weight, and of gold dust 144.86 grains, or about one-and-a-half times the weight, to effect the decomposition of the poison and the complete appropriation of its elements. If we follow Cahours we need only employ 67.10 grains of gold.

In conclusion we would remark, that very large doses of the antidote must be rarely needed, since vomiting, which marks the earliest effects of the corrosive chloride of mercury, necessarily rids the stomach of some portion of the destructive agent.—*Am. Jour. of the Medical Sciences.*

## EXPERIMENTS ON THE INFLUENCE OF OZONISED AIR UPON ANIMALS.

By W. W. Ireland, M.D., Edinburgh.

The first means used to produce ozone was by burning phosphorus in closed vessels. The gas was then passed through water, in order to get rid of the phosphoric acid. This, however, did not separate it completely: the air was still charged with the white vapors of phosphoric acid, which, of course, would tend to vitiate the experiment. Moreover, by producing ozone in this way, the relative proportion of oxygen to the nitrogen in the included air was notably diminished by the large amount of oxygen taken up in the oxidation of the phosphorus. I then tried another way to procure ozone—two parts of powdered hypermanganate of potash with three parts by weight of sulphuric acid were introduced into a glass bottle. The sulphuric acid acts slowly on the hypermanganate, setting free some of its atoms of oxygen in the form of ozone, which is thus added to the enclosed air. The permanganate of potash and sulphuric acid were introduced successively into a glass bottle, the cork of which was fitted with two tubes; one of these communicated with a smaller double-necked bottle containing water; the second neck gave passage to a tube which communicated with the spout of a glass jar. This jar had a short broad neck and a large wide shoulder, which became like a balcony when turned upside down in a plate of water. This jar received the ozonised air when pushed through the water, which was done by a pair of bellows communicating with the other cork tube of the first bottle. If the action was allowed to go on too rapidly, the ozone became mixed with a violet-colored vapor,* which, after some days' use, gave a rose tint to the pipes down nearly to the water, but not to those that received the ozone after passing through the water, which ozonized air, as before said, was collected in a jar turned upside down in a plate with water slightly heated.

The animal introduced took refuge from the contact of the thin stratum of water into the shoulder of the jar. In all the experiments, save No. I., hypermanganate of potash was used.

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* No doubt the same mentioned by Berzelius as produced by the action of sulphuric acid on hypermanganate of potash at a temperature of 130° Centigrade, and found to be a mixture of permanganic and sulphuric acids. Professor Fresenius, to whose kind advice and encouragement I owe much, approves of my apparatus, but remarks that, to purify the produced gas, "tubes filled with powdered pumice-stone are more efficacious than water alone." I imagine, however, that the professor refers more particularly to the ozone produced by phosphorus.

*Experiment I.*—A mouse exposed to ozonised air for one hour—very much excited, leaping and running about—did not appear much diminished in vigor at the close of the experiment, but gradually became weaker, and died in about an hour and a half after being withdrawn.

*Experiment II.*—3½ grammes of hypermanganate of potash.—A mouse kept in one hour—respiration accelerated—much excited—leaped and ran round about the jar; when taken out, strong enough to try to escape—warmed, and offered food—died in about ten hours after, of gradual exhaustion.

*Experiment III.*—3½ grammes of hypermanganate used.—A frog kept in for two hours—respiration accelerated—eyes fixed and starting—no excitement; seemed exhausted, but recovered quickly, and did not appear to be the worse next day.

*Experiment IV.*—3½ grammes.—A sparrow shut in half-an-hour—passed the stream of ozonised air through fresh calves' blood instead of water; it caused the blood to coagulate a little more quickly, but had no other visible effect. The respiration of the sparrow became hurried; it looked pert and bold and much excited, but soon became exhausted—number of respirations increased by somewhat less than one-third. The little animal seemed much fatigued when let out, but quickly recovered. The same sparrow was introduced next day—did not appear so readily affected as before, and was allowed to escape.

*Experiment V.*—3½ grammes.—A sparrow shut in one hour—great excitement—respiration accelerated by one-third—symptoms of sinking, with occasional convulsions; very much exhausted when taken out, but recovered in an hour or two. The sparrows recovered better than the mice, probably owing to the greater extent and activity of their respiratory apparatus.

*Experiment VI.*—3 grammes.—A mouse; at first seemed exhilarated—respirations short and quick, difficult to count. In an hour appeared weak and exhausted, but excitement increased—running and leaping about. In three hours it died in the jar.

I examined the bodies of the three mice that died; the venous blood appeared to be lighter in color than usual. In No. II. the lungs appeared to be congested, but pieces of them floated in water; the hearts still contained blood. No other changes could be made out, so I determined on an experiment with a larger animal.

*Experiment VII.*—5 grammes.—A rabbit shut in a hermetically-sealed box with two little glass windows—respiration accelerated exactly one-third—no excitement observable; temperature before being put in 36 deg. Centigrade, but temperature only 31 deg. When let out surface felt warm, and it ate the very moment it was out. Kept two days longer under observation; it appeared to be quite well.

*Experiment VIII.*—12 grammes.—A rabbit kept in four hours—

respiration much accelerated—no visible excitement, save a very little which appeared towards the end—evidently did not suffer much uneasiness. When let out, dull and exhausted, but able to walk—stunned with a blow on the back of the neck, thorax opened, heart still beating—blood coagulated instantaneously in the pericardium when the aorta was cut—clot very firm and tenacious. A little more blood collected in a shallow dish coagulated at once. Arterial and venous blood retained their distinguishing hues—perhaps venous blood a little redder, but I could not be certain. No other changes noticed—stomach, intestines, and bladder full. Portions of the blood, brain, lungs, liver, kidneys, and contents of stomach, put into closed phials, and tried with the ordinary ozone test-paper as well as that of Houzeau, but no ozone could be detected save in the lungs, and a trace in the contents of the stomach.

These, as might be expected, resemble the results of the exposure of animals to oxygen gas, which, however, is described as bringing on comatose symptoms, and, when the animals are withdrawn, as leaving less deleterious after-effects than in Nos. I. and II.

I never observed any coma, and I failed to produce "bright scarlet blood in the veins"* with ozonised air as has been done with oxygen.

These experiments were most carefully performed, and all sources of complication avoided as carefully as possible; and, as I felt satisfied of their correctness, I saw no reason to sacrifice the lives of more animals in repeating them. I submit to the reader the following conclusions:—

I. Ozonised air accelerates the respiration, and, we may infer, the circulation.

II. Ozonised air excites the nervous system.

III. Ozonised air promotes the coagulability of the blood, probably by increasing its fibrin. In the blood, however, ozone loses its peculiar properties, probably entering into combination with some of the constituents of the circulating fluid.

IV. Animals can be subjected to the influence of a considerable proportion of ozone in the air for hours without permanent injury; but in the end ozone produces effects which may continue after its withdrawal and destroy life.—*Edinburgh Med. Journal.*

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HYDROPHOBIA.—Prof. Renault caused 131 dogs to be either bitten by mad dogs, or inoculated with their saliva. Of these, 63 showed no symptoms during a period of four months, and were therefore considered free. Of the remaining 68, 31 became mad after the 40th day; 23 after the 45th; 16 after the 50th; 14 after the 55th; 12 after the 60th; 8 after the 65th; 7 after the 70th; 3 after the 80th; and one upon the 118th.—*Lancet.*

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* Carpenter's Physiology, 1853, p. 543.

# Reports of Medical Societies.

## EXTRACTS FROM THE RECORDS OF THE BERKSHIRE DISTRICT MEDICAL SOCIETY.

BY FRANK A. CADY, M.D., SECRETARY.

The last regular meeting of the Berkshire District Medical Society was held at Pittsfield, in the Chemical Hall of the Medical College, March 25th, 1863, Dr. Adams in the chair. The record of the previous meeting was read and approved.

The report of cases being called for, Dr. Smith, of Pittsfield, reported a case of pneumonia, followed by pleurisy. Maj. G., 95 years of age, was attacked (Feb. 20th, 1863) with congestion of right lung —pain, in same side, dry cough, difficulty of breathing, together with some fever. The symptoms increased in severity, and Dr. S. was called Feb. 23d, and, upon examination, found dulness on percussion over the whole of the right side. No respiratory murmur could be detected in the right lung; pulse 120 per minute, hard and full; great heat of surface; face livid and skin dry. At this time cerebral disturbance was manifested, which, with the other symptoms, continued five or six days, but finally yielded to treatment, and convalescence was established on the sixth day of treatment and ninth day of disease. The patient continued to improve, the respiration becoming more free and natural; the expectoration changed from tenacious and bloody to the cream-colored expectoration characteristic of the third stage. On the eighteenth and nineteenth days of the disease, he was able to walk about his house. On the evening of the nineteenth day he was attacked with pleurisy; pain in the side, increased frequency of pulse, loss of appetite, renewal of the febrile disturbance, with great prostration. These symptoms, to which were added hurried respiration and muttering delirium, continued to increase in intensity until March 24th, when he died. The treatment during the attack of pneumonia was, counter-irritation of the surface, antimony, veratrum, mild alteratives and expectorants. The same treatment was continued, through the pleuritic attack, with the exception of antimony and veratrum, and in their places iodide of potassium and stimulants. Dr. S. said that the remarkable features of this case were—the rapid and complete recovery from the pneumonia in a man of his age, and the utter prostration which supervened upon the pleuritic attack.

Dr. Childs referred to the case of phlegmasia dolens reported at the last meeting; the case was well marked and more than usually severe. The patient had entirely recovered. The treatment had been chiefly constitutional, and he believed that all local measures were of but little service when used alone. In his experience, depurative and supporting measures had insured the best success, and all antiphlogistic means had been contra-indicated.

Dr. Green remarked, that in the discussion upon phlegmasia dolens, it was interesting to inquire whether the different methods of treatment did not all point in the same direction, viz., to a local inflammation associated with constitutional depression. He believed the disease to be essentially *phlebitis*, commencing in the uterus and extending through the uterine plexuses to the iliac and femoral veins. Dr. G. had always found, upon examination, in the early stages of the disease, the uterus hot, swollen and tender, and had obtained marked relief and great improvement from scarification of, or the application of leeches to, the os uteri daily. He had seen the disease twice in non-puerperal women, both suffering from uterine disease; once in a man, with enteric typhus. He always combined, with the local treatment, alterative and supporting constitutional measures.

Dr. **Allen** reported a case of peritonitis followed by ascites. The patient had been twice relieved by paracentesis. The ascitic effusion still continued, and the result was yet doubtful.

Dr. **Ransom** reported the following case. Was called, Feb. 1st, 1863, to see Mrs. F., 36 years of age, who complained of vertigo, from which she had suffered several years, and which she supposed depended upon some disease of the heart. She had leucorrhœa constantly, and had, at various times, suffered from uterine hæmorrhage. The bowels, for many years, had been obstinately constipated, and she had suffered more or less from indigestion. Nothing abnormal could be detected, either in the respiration or the sounds of the heart. Under treatment the symptoms were relieved, and she continued to improve till the middle of the month, when these symptoms returned, to which were added nausea and vomiting to such an extent that she was unable to take or retain much nourishment. Her cough became more troublesome, and the dyspnœa, which had existed from the first of the attack, now became so great that she was unable to assume the recumbent position. These symptoms grew more and more distressing till the 3d of March, when she died. Autopsy twenty-four hours *post-mortem.*—The surface was unusually livid. On opening the thorax, the lungs did not collapse, were œdematous; floated when placed in water, and in color resembled the lungs in the third stage of pneumonia. Fatty degeneration had taken place to a considerable extent on the right side of the heart; in other respects this organ was normal. The liver presented the condition known as "nutmeg liver." The kidneys were slightly congested, and, on the removal of their proper capsule, had a granular and fatty appearance. The stomach gave evidence of recent inflammation. The mucous coat was softened and easily separated.

Dr. **Deming** reported several cases of scarlatina which had occurred in his practice during the past month, four of which were followed by dropsical effusion. In all these cases the urine had been highly albuminous.

Dr. **Cady** presented a fibrous tumor, with the following history:—Mr. L., 33 years of age, by occupation a dyer, discovered, some time in November, 1861, a hard tumor, nearly round in form, situated about three inches above the umbilicus. When first noticed, it was perhaps one inch in diameter, almost immovable, not adherent to the integuments, nor was there any discoloration upon the surface, or any sensation of pain, except upon severe pressure. It did not increase perceptibly for two or three months, after which time it "grew slowly" for about seven months and became more painful upon pressure; the surface irritable, and the vascularity considerably increased. During this time the patient had continued his occupation. The tumor now (Sept. 18th, 1862) began to increase more rapidly in size, was becoming still more sensitive to the touch, and the slightest friction from the clothing caused oozing of blood from the apex. It went on thus, with a constantly increased rapidity of growth, the pain and tenderness becoming more exquisite and the hæmorrhage in greater abundance, till Oct. 22, 1862, when, upon making some slight exertion, he had a severe arterial hæmorrhage, the blood escaping *per saltum*, and producing approaching syncope before it could be arrested. Two days later (Oct. 24th), the bleeding recurred, in considerable quantity, and was finally stopped by the application of lint saturated in perchloride of iron. On the morning of the 30th it returned with such violence as to eject streams of arterial blood a distance of five or six feet. The quantity lost at this time was enormous. Neither pressure nor the application of the iron had any influence in its arrest, and the hæmorrhage only ceased when the patient fainted from exhaustion. During this hæmorrhage, Dr. C. was called to see him by his attending physician, Dr. Page. He found, upon examination, a tumor situated between the ensiform cartilage of the sternum and the umbilicus, pyramidal in form, about five inches in diameter at its base, and four inches from base to apex. It was firm to the touch, yet exceedingly vascular, and pulsated with sufficient force to move the tumor sensibly; nor was the motion imparted to the tumor by the circulation materially diminished by change of position in the patient, or by raising the tumor and the anterior abdominal walls from over the aorta. It was firmly attached along the linea alba, so that the fingers could only with the greatest difficulty be inserted a few lines beneath its lateral edges. The patient had become greatly prostrated from the loss of blood, and the liability of the recurrence of the hæmorrhage was fully appreciated. Nevertheless, it was decided (because of the difficulty in determining the cause of the pulsation and the source of the hæmorrhage) to wait until the next day, and examine the case again before performing an operation. The bleeding came on again at 10 o'clock on the following morning (Oct. 31st), but was, after a considerable loss of blood and repeated applications of the persulphate of iron, arrested. In the afternoon of the same day, after another examination, the tumor was removed by Dr. Cady, assisted by Drs. Green and Page. It was found that the adhesions which bound it so firmly to the abdominal walls existed, not only along the linea alba, but between the tumor and the adjacent muscles. These bands (of fibro-cellular tissue) were of great firmness and density, through which emerged several arteries of considerable size, four of which it was found necessary to ligature. The edges of the wound were brought together with some difficulty. It did not heal by first intention. Considerable sloughing followed, but after a time, by a generous diet and local applications of a solution of nitrate of silver, the granulations became healthy, and in five weeks it had entirely healed, and the general health of the patient was perfectly restored.

Dr. Cady remarked that the points of interest in the case were, the slowness of growth, during the first ten months, compared with the rapidity in the last few weeks; the absence of sensibility in the early part of its history and the acuteness of that sensibility in the latter part; the pulsatory motion of the tumor, so well marked, without any aneurismal condition, and the arterial development in a growth having so recent an origin.

Dr. Cady also exhibited a scirrhous breast. Mrs. N., about 48 years of age, vigorous and healthy in all respects until July, 1861, when she began to feel "sharp twinges" of pain in the left breast. In August, she discovered a "small, hard bunch" just beneath the nipple, which from that time went on increasing in size. The paroxysms of pain became more frequent and intense, until February, 1862, when she consulted her usual medical attendant. Not receiving from him the encouragement she desired, and her general health being impaired, she sought the advice of another physician, who prescribed iron and iodide of potassium, and the local application of tincture of iodine to the breast. After a time, receiving no benefit from the remedies, and the application of the iodine seeming to increase the local disturbance, she again sent for Dr. Jennings, her regular physician, under whose care she remained till early in May. The tumor continued to enlarge, the nipple to recede from the surface, the shrinking and discoloration of the breast to be more apparent. The sallow complexion, emaciation and the general cancerous cachexia had become so strongly marked, as to induce Dr. J. to advise extirpation of the breast. Dr. C., assisted by Dr. J., removed the breast on the 8th of May. The wound healed readily, chiefly by first intention; all constitutional disturbance disappeared after a few weeks, and the patient is now, ten months after the operation, perfectly free from any local manifestation of the disease. Has regained her flesh and strength entirely. Dr. Cady said he did not present this case because it was unusual to remove scirrhous breasts, but that he might add to the proofs already existing of the good results likely to follow the *early* removal of such tumors, before the surface becomes ulcerated, the surrounding glands implicated, and the system wholly impregnated with the poison.

Dr. Cady reported the following case of gun-shot wound. Lt. B. (of the 15th M. V. M., Andrews' sharp-shooters), received, at the battle of Antietam (Sept. 17th, 1862), a wound from a rifle ball. The ball entered the body, just behind the anterior superior spinous process of the ilium, producing a compound comminuted fracture of the upper portion of the os innominatum; and escaped at a point just anterior to the sacro-iliac junction, and about an inch below the crest, of the ilium; carrying through the opening several small spicula of bone. The following day, after being removed to the Hospital, several small fragments of bone were removed from the wound, through which the ball made its escape. Four days later (Sept. 22d), his Surgeon discovered that no discharge of any kind came from either of the openings, that the swelling had considerably increased, and that loose fragments of bone were lying near the surface, in the region of the crest of the ilium. He made an incision of some three inches in length, midway between the points of entrance and egress of the ball, and removed several of these shattered pieces of bone. Three of them were one and one fourth inches in length, nearly an inch in width, and the full thickness of the ilium. Suppuration was established in due time, and with the discharge of pus were often found small spicula of bone. In December, the patient was removed from the hospital to his home in Windsor, Berkshire Co. Dr. C. first saw him January 3d, 1863. At that time there was a moderate discharge of pus from all three of the openings; the one made by the knife discharged most. A probe could be carried from the anterior through the posterior opening, and one introduced at the middle opening could be made to touch the other at right angles. The irregularly fractured bone could be traced, with the probe, its whole extent. The patient was directed to take quinine and iron, to syringe the wounds through each opening with tepid water; then to inject into them a solution of nitrate of silver (five grains to the ounce of water) once a day. Dr. C. saw the patient again Jan. 13th. The general appearance of the wound had improved. The discharge diminished in quantity, and was lighter in color. Lt. B. showed him, at that time, two spicula of bone, one inch in length, which had escaped from the central opening the day before. No detached fragments of bone could be detected with the probe. Directed the same treatment to be continued. Saw the patient again Jan. 27th. Discharge much diminished; anterior wound entirely closed; middle and posterior still communicated with each other; firm cicatrization over the anterior portion of the fractured ilium; patient gaining flesh; general appearance greatly improved. Directed a continuation of same treatment (injections of nitrate of silver, with doses of quinine and iron). Lt. B came to him Feb. 14th. The posterior wound was nearly healed; from the central several pieces of bone had escaped within a few days; discharge of pus very slight; some large granulations still existed around the central opening; general health good. Was directed to omit the quinine and iron, and continue the injections. The flabby granulations were cauterized. Came to his office again March 16th. Wounds entirely healed; the cicatrization was firm. He walked with ease, but could not push with any force with the left hand, or raise a great weight with the right, the muscles of the left side being detached from their moorings to the pelvis. Lt. B. has, within a week, reported himself for duty in the field. Dr. C. thought it unusual for a gun-shot wound implicating the soft parts and a spongy bone like the ilium to such an extent, to heal so readily and give rise to so little constitutional disturbance.

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

BOSTON: THURSDAY, MAY 7, 1863.

Annual Report of the Trustees of the Museum of Comparative Zoölogy, together with the Report of the Director.—We have before us the annual report of the Museum at Cambridge, under the charge of Prof. Agassiz, and it gives most gratifying proof that the din of arms is not as yet sufficient to arrest the progress of science among us; and that notwithstanding the enormous sacrifices our community is making to contribute its share to the support of the Government, the study of Nature's laws is still carried on with zeal and assiduity. The report shows that the institution at Cambridge has already assumed an authoritative position among the great collections of the world. We say authoritative, for it is not merely a heterogeneous collection of natural objects for the gratification of public curiosity, however laudable such a motive may be to interest the community at large in the wonders of creation. It is gathered for a much more profound purpose than this. If we understand the plan of its projector, his principal object has been to bring together in this collection such a vast number of specimens from the different departments of the animal kingdom, that the subtle affinities and relations which bind the whole system of zoölogy together may be made evident to all; and that the grand and beautiful plan of their creation may be read from class to class in regular sequence, as one might turn the leaves of some mighty work, a masterpiece of intellect, in which step after step, by impregnable logic and pertinent illustration, the reader is led along to the irresistible conclusion. The plan is one which might well appal a common mind, and which one could hardly hope to see carried out to its conclusion within the limits of an ordinary life. The object, however, is worthy of a master mind, such as conceived it, and to the diffused magnetism emanating from that mind we must look for the completion of the great work he has had the boldness to undertake. And here we would observe that it is something remarkable that an object, which in its incompleteness and to common observation is so recondite, so little calculated to impress the vulgar mind or gratify superficial curiosity, has through the peculiar power of its earnest advocate, the director of the Museum, become a matter of such public interest that the finances of the State and the private resources of individuals have been placed at his disposal, almost without limit, and voluntary contributions have been poured in upon the Museum from all parts of the world, which a princely income alone could purchase.

Much might be said about the new views of zoölogical relations, the definition of species and the question of their origin, the necessary change of opinion on some very important geological points, which the comparison and juxtaposition of such great numbers of specimens of single species as this Museum contains are likely to bring about. Any one who has heard from time to time the new views and suggestions which in its incomplete condition it has opened to the ever active mind of its founder, must feel that its continued growth and prosperity are most worthy objects of interest and care to an enlightened community. Its claim to direct financial aid from the State rests on its being a part of the general system of popular education. Speaking of it in this relation, the Trustees report that its condition is highly gratifying. "The lectures, just closed, have been attended by from one hundred to one hundred and twenty persons, about half of whom were not connected with the University at Cambridge, but came from the people at large. Besides these lectures, much instruction has undoubtedly been gained by the large number of persons who daily, at all hours, and in all seasons, have visited the collections, which are always open and accessible, free of charge, to all comers." A large part of the listeners from the community at large are, we understand, engaged in teaching; and thus the benefit received is at once widely diffused through the community. The Trustees also state that the sum of eleven thousand two hundred dollars has been recently subscribed by a few public-spirited individuals, to meet a temporary falling off in the resources of the institution, growing out of the exigencies of the times, one half of it only to be expended during the present year.

The report of the director gives an interesting account of the amount of work done during the past year, and the special subjects which the scientific corps engaged in it have been employed in elucidating. The contributions have been large. "Mainly through the liberality of gentlemen engaged in business, no less than two hundred and thirty packages, barrels, cans, &c., filled with specimens from every quarter of the globe," have been received. Many specimens have also been received from scientific societies, and due acknowledgment is made to all of them, as well as to the private individuals by name, to whose generosity the Museum is so much indebted. Prof. Agassiz has himself contributed to the library from his own private library 823 volumes, mostly transactions of learned societies, and his son has presented his collection of insects, consisting of one hundred and ten cases. Of the collection of fishes belonging to the Museum, the director says:—

> "Thus far the collection of fishes brought together in the Jardin des Plantes, by Cuvier and Valenciennes, has been considered the largest in existence, numbering about four thousand two hundred species, according to a recent report by Professor Duméril. From a recent article in the Natural History Review, of London, I see that the Curator of the British Museum claims now a superiority for their collection, over that of Paris, stating that the former contains 20,000 specimens. The number of species is not given, but judging from Dr. Günther's catalogue, as far as printed, the number of species can hardly exceed that of the Jardin des Plantes. Our own collection numbers now 100,000 specimens, representing 6,000 species, all preserved in alcohol. This numerous collection allows for the possibility of an extensive system of exchanges, as well as for the preparation of a large number of skeletons, of which we have already more than fifteen hundred."

Following the report of the director are the reports of his subordinates, each giving a history of what has been done in his department during the past year, and giving full acknowledgment for every donation received. That of the Curator of Ichthyology also unfolds in detail a plan for the special arrangement of the fishes in the Museum in accordance with the views of the director. Some idea of the magnitude of the work undertaken may be obtained from his statement that "it is estimated that it will take at least ten years to complete the arrangement of the fishes only, and that the expense for this special purpose cannot be less than twenty thousand dollars." "The total number of specimens added to the department of Ichthyology during the past year, amounts to two thousand seven hundred and seventy-nine, consisting of three hundred and seventy-nine species, of which about two hundred are new to the collection. The small addition of new species shows that our collection has reached a point of completeness when a further increase becomes very slow."

In the department of Mammalia, the report states that "the additions to the collection, although not numerous, have been very valuable. The whole number received, not including the fossils, is 233, in 42 lots, comprising 117 species, of which a considerable number were new to the collection."

In the department of Birds, "during the year there have been received 52 lots, comprising 2,274 specimens, representing 453 species, of which 223 are foreign and the rest American."

Of Reptiles "thirty-six donations have been received, amounting to seven hundred and nine specimens, consisting of one hundred and seventy-four different species, ninety-four of which were not before in the collection."

In the deparatment of Insects, the Curator says:

> "It will be seen by the schedule accompanying this report, wherein the additions received during the year have been recorded, that the additions received by donation amount to 2,053 species, represented by 6,792 specimens; that those received through the Gray Fund number 1,941 species and 6,036 specimens; and

that those obtained by exchange reach the sum of 2,568 species and 11,354 specimens, making a total of 6,562 species and 24,182 specimens. These numbers should only be taken as an approximate, because an actual enumeration of the specimens was scarcely possible, and a careful determination of the species would be the work of many years."

Of the Annelids 400 specimens have been received, comprising 49 species, since the collection was catalogued. The additions to the collection of Echinoderms have been numerous and valuable, especially with reference to their geographical distribution. Of the Acalephs, 33 species have been received, most of them new to the collection. Of the Polyps it is said, "the number of specimens of corals that have been identified, labelled and catalogued, is 3,123, or about one fourth of the entire collection. The additions to this department have been numerous and important. The whole number received, including both alcoholic and dry specimens, is 788, representing 150 species, many of which were new to the collection."

We have thus run over this important report. It contains many details of interest, for which we have no space. It shows that there is a body of working men at Cambridge, who, under the guidance of the director of the Museum, are opening a new chapter in the zoölogical history of our planet.

**Prof. Frank H. Hamilton**, now a Medical Inspector in the regular army, was lately taken prisoner near Nashville, Tenn. After severe hardship, with other prisoners, he was allowed to return to Nashville.

## VITAL STATISTICS OF BOSTON.

### For the Week ending Saturday, May 2d, 1863.

DEATHS.

| | *Males.* | *Females.* | *Total.* |
|---|---|---|---|
| Deaths during the week - - - - - - - - - | 42 | 46 | 88 |
| Ave. mortality of corresponding weeks for ten years, 1853—1863, | 36.8 | 39.0 | 74.8 |
| Average corrected to increased population - - - - | 00 | 00 | 82.46 |
| Death of persons above 90 - - - - - - - - - | 0 | 1 | 1 |

*Mortality from Prevailing Diseases.*

| Phthisis. | Croup. | Scar. Fev. | Pneumon. | Variola. | Dysentery. | Typ. Fever. | Diphtheria. |
|---|---|---|---|---|---|---|---|
| 20 | 2 | 0 | 5 | 0 | 0 | 2 | 1 |

**Communications Received**—Cases treated at Hospital No. 2, Nashville, Tenn. From Surgeon James Bryan.

**Pamphlets Received.**—Speech of the Rev. Dr. Bellows, President of the United States Sanitary Commission, made at the Academy of Music, Philadelphia, Tuesday evening, February 24th, 1863.

**Married.**—In this city, 29th ult., Dr. Alonzo Boothby to Miss Maria A. Stodder, both of Athens, Me.—In Hingham, 22d ult., Dr. J. Edwards Harlow to Miss Sallie G. Thaxter, both of Hingham.

**Died,**—At Cummington, 19th ult., Dr. Benjamin Gardner. 78.—At Philadelphia, 13th ult., suddenly, Joseph H. Haskell, M.D., 42 years.

**Deaths in Boston** for the week ending Saturday noon, May 2d, 88. Males, 42—Females, 46.—Accident, 1—anæmia, 1—apoplexy, 2—inflammation of the bowels, 1—congestion of the brain, 2—disease of the brain, 2—bronchitis, 3—cancer (of the uterus), 1—consumption, 20—convulsions, 5—croup, 2—diphtheria, 1—dropsy, 5—dropsy of the brain, 8—drowned, 1—typhoid fever, 2—gangrene, 2—hæmorrhage, 1—disease of the heart, 4—intemperance, 2—inflammation of the lungs, 5—old age, 2—paralysis, 1—premature birth, 2—scirrhus, 1—smallpox, 1—sore throat, 1—ulcers, 1—unknown, 4—whooping cough, 4.

Under 5 years of age, 32—between 5 and 20 years, 4—between 20 and 40 years, 25—between 40 and 60 years, 18—above 60 years, 9. Born in the United States, 59—Ireland, 20—other places, 9.